



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/847,444	05/01/2001	Richard M. Anthony	M-9897-1P US	7762

33438 7590 11/18/2004
HAMILTON & TERRILE, LLP
P.O. BOX 203518
AUSTIN, TX 78720

EXAMINER

MEINECKE DIAZ, SUSANNA M

ART UNIT	PAPER NUMBER
----------	--------------

3623

DATE MAILED: 11/18/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/847,444

Applicant(s)

ANTHONY ET AL.

Examiner

Susanna M. Diaz

Art Unit

3623

Period for Reply - The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 May 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-37 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-37 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 May 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. Claims 1-37 are presented for examination.

Claim Rejections - 35 USC § 101

2. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3. Claims 1-31, 36, and 37 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

The basis of this rejection is set forth in a two-prong test of:

- (1) whether the invention is within the technological arts; and
- (2) whether the invention produces a useful, concrete, and tangible result.

For a claimed invention to be statutory, the claimed invention must be within the technological arts. Mere ideas in the abstract (i.e., abstract idea, law of nature, natural phenomena) that do not apply, involve, use, or advance the technological arts fail to promote the "progress of science and the useful arts" (i.e., the physical sciences as opposed to social sciences, for example) and therefore are found to be non-statutory subject matter. For a process claim to pass muster, the recited process must somehow apply, involve, use, or advance the technological arts.

Claims 1-31 recite a useful, concrete, and tangible result; however, they do not incorporate the technological arts, i.e., the recited steps could be performed entirely by hand. Therefore, claims 1-31 are deemed to be non-statutory.

Claim 36 recites a system that comprises various modules. These modules are interpreted as software; however, the recited modules are not expressly recited as causing a processor or computer to perform the recited functionality upon execution of the instructions. Therefore, claim 36 is interpreted as reciting software *per se*, which is non-statutory subject matter.

Claim 37 recites a computer program product; however, the recited instructions are not expressly recited as causing a processor or computer to perform the recited functionality upon execution of the instructions. Therefore, claim 37 is interpreted as reciting software *per se*, which is non-statutory subject matter.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-4, 6-11, 20-27, 30-33, and 35-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lilly et al. (U.S. Patent No. 5,787,000) in view of Jenkins (US 2002/0188499).

[Claim 1] Lilly discloses a method for scheduling work and delivery of material for mass-producing items in a factory comprising:

obtaining at least one outstanding customer order, wherein each outstanding customer of the at least one outstanding customer order includes an item ordered by a customer, and

producing the item requires a required quantity of a required material;

determining a current state of an available inventory of at least one material; and

periodically generating a work schedule and a material delivery schedule for producing the item using the at least one outstanding customer order and the current state of the available inventory (col. 4, lines 33-44 -- Each customized order from a customer is integrated into a work schedule; col. 5, lines 24-67; col. 6, line 65 through col. 7, line 22 -- Resource availability, material availability, and work order information are all used to schedule the delivery of needed materials as well as to schedule the ultimate assembly of the ordered product; col. 8, lines 33-67 -- If all materials are currently available, the work order may be scheduled. Otherwise, the work order may need to be rescheduled based on the lead time of the needed materials; col. 9, lines 8-25 -- Work orders may be scheduled by priority; Columns 9-15 discuss the forward and backward scheduling algorithms that may be used to schedule work orders).

As per claim 1, Lilly does not expressly teach that the current state of an available inventory is determined based on one material *from a plurality of material sources*. However, Jenkins teaches the tracking of available materials throughout a supply chain, including in-transit inventory, in order to quickly resolve conflicts with respect to product availability when they arise (¶¶ 7-9). Since Lilly is applied to an

order-driven manufacturing environment (in which perfect timing of the arrival of needed materials is crucial), the Examiner asserts that it would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to adapt Lilly to determine the current state of an available inventory based on one material *from a plurality of material sources* in order to facilitate the quick resolution of conflicts with respect to product availability when they arise, thereby minimizing any negative impact to the order-driven manufacturing plans when such conflicts arise.

[Claim 2] Lilly teaches an availability time of the available quantity of the material at the material source to each operation of at least one operation of each manufacturing line of at least one manufacturing line of the factory" (col. 5, lines 24-67; col. 6, line 65 through col. 7, line 22; col. 8, lines 33-67). Lilly does not expressly teach that the material source information is updated continuously; however, Jenkins' invention provides "the user with real-time network visibility of planned shipments, in-transits, available inventory, and expiring product" (§ 8), thereby addressing the limitations "wherein the determining the current state of the available inventory includes determining for each material of the at least one material of the available inventory: a material source of the plurality of material sources from which the material can be obtained, wherein the material source is updated continuously; and an available quantity of the available material at the material source, wherein the available quantity is updated continuously, wherein the available time is updated continuously." As explained above, Jenkins teaches the tracking of available materials throughout a supply chain, including in-transit inventory, in order to quickly resolve conflicts with

Art Unit: 3623

respect to product availability when they arise (§§ 7-9). Since Lilly is applied to an order-driven manufacturing environment (in which perfect timing of the arrival of needed materials is crucial), the Examiner asserts that it would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to adapt Lilly to determine the current state of the available inventory, "wherein the determining the current state of the available inventory includes determining for each material of the at least one material of the available inventory: a material source of the plurality of material sources from which the material can be obtained, wherein the material source is updated continuously; and an available quantity of the available material at the material source, wherein the available quantity is updated continuously, wherein the available time is updated continuously" in order to facilitate the quick resolution of conflicts with respect to product availability when they arise, thereby minimizing any negative impact to the order-driven manufacturing plans when such conflicts arise.

[Claim 3] Lilly determines the availability of needed materials (col. 5, lines 24-67; col. 6, line 65 through col. 7, line 22; col. 8, lines 33-67). Lilly does not expressly teach that the inventory/quantity is updated continuously; however, Jenkins' invention provides "the user with real-time network visibility of planned shipments, in-transits, available inventory, and expiring product" (§ 8) based on a needed date/time (§ 42), thereby addressing the steps of "determining whether a change in the available quantity of a changed material of the at least one material of the available inventory at a changing material source of the plurality of material sources is occurring; and when the change is occurring, updating the material source for obtaining the changed material

according to the change; updating the available quantity of the changed material at the changing material source; and updating the availability time for the available quantity of the changed material at the changing material source for each operation of the at least one operation.” As explained above, Jenkins teaches the tracking of available materials throughout a supply chain, including in-transit inventory, in order to quickly resolve conflicts with respect to product availability when they arise (¶¶ 7-9). Since Lilly is applied to an order-driven manufacturing environment (in which perfect timing of the arrival of needed materials is crucial), the Examiner asserts that it would have been obvious to one of ordinary skill in the art at the time of Applicant’s invention to adapt Lilly to perform the steps of “determining whether a change in the available quantity of a changed material of the at least one material of the available inventory at a changing material source of the plurality of material sources is occurring; and when the change is occurring, updating the material source for obtaining the changed material according to the change; updating the available quantity of the changed material at the changing material source; and updating the availability time for the available quantity of the changed material at the changing material source for each operation of the at least one operation” in order to facilitate the quick resolution of conflicts with respect to product availability when they arise, thereby minimizing any negative impact to the order-driven manufacturing plans when such conflicts arise.

[Claims 4, 24] Lilly determines the availability of needed materials (col. 5, lines 24-67; col. 6, line 65 through col. 7, line 22; col. 8, lines 33-67). Lilly does not expressly teach that the in-transit inventory/quantity is updated continuously; however, Jenkins’

invention provides “the user with real-time network visibility of planned shipments, in-transits, available inventory, and expiring product” (¶ 8) based on a needed date/time (¶ 42), thereby addressing the limitations of “wherein the available inventory includes an in-transit inventory of an in-transit material of the at least one material at an in-transit material source of the plurality of material sources; and further comprising: determining whether the in-transit inventory is affected by the change; and when the in-transit inventory is affected, determining whether the in-transit material corresponds to the changed material, and when the in-transit material corresponds, updating the available quantity of the in-transit material of the in-transit material source; and updating the availability time for the available quantity of the in-transit material at the in-transit material source for each operation of the at least one operation.” As explained above, Jenkins teaches the tracking of available materials throughout a supply chain, including in-transit inventory, in order to quickly resolve conflicts with respect to product availability when they arise (¶¶ 7-9). Since Lilly is applied to an order-driven manufacturing environment (in which perfect timing of the arrival of needed materials is crucial), the Examiner asserts that it would have been obvious to one of ordinary skill in the art at the time of Applicant’s invention to adapt Lilly to incorporate the limitations of “wherein the available inventory includes an in-transit inventory of an in-transit material of the at least one material at an in-transit material source of the plurality of material sources; and further comprising: determining whether the in-transit inventory is affected by the change; and when the in-transit inventory is affected, determining whether the in-transit material corresponds to the changed material, and when the in-transit material

Art Unit: 3623

corresponds, updating the available quantity of the in-transit material of the in-transit material source; and updating the availability time for the available quantity of the in-transit material at the in-transit material source for each operation of the at least one operation" in order to facilitate the quick resolution of conflicts with respect to product availability when they arise, thereby minimizing any negative impact to the order-driven manufacturing plans when such conflicts arise.

[Claims 6-9] Neither Lilly nor Jenkins expressly teaches what happens to an excess quantity of inventory; however, Jenkins does keep track of safety stock levels (§ 45). Jenkins also mentions that overproduction and overshipment of a product are common occurrences (§ 49). Therefore, when an excess quantity of a scheduled material exists, it must be stored somewhere for later access. Furthermore, the customers would not likely accept more than what they ordered because, as disclosed by Jenkins, "lower inventory levels allow businesses to minimize storage costs...[and] to reduce risks from market changes such as fluctuating in price or demand" (§ 3). Therefore, the Examiner asserts that it would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to modify the Lilly-Jenkins combination to arrange for storage of excess materials by performing the steps of identifying a scheduled material of the at least one material using the material delivery schedule, wherein the scheduled material corresponds to a scheduled material source of the plurality of material sources; determining a scheduled quantity of the scheduled material at the scheduled material source using the material delivery schedule; and determining an excess quantity of the scheduled material at the scheduled material source by comparing the available

Art Unit: 3623

quantity of the scheduled material at the scheduled material source to the scheduled quantity (claim 6); delivering the excess quantity of the scheduled material from the scheduled material source to an excess material source; and accepting the excess quantity of the scheduled material at the excess material source (claim 7); wherein the delivering the excess material is delayed during the generating until after the generating; and the accepting the material at the excess material source is delayed during the generating until after the generating (claim 8); producing a material handling report when the excess material is determined, the material handling report including a delivery time, the excess material source, and the excess quantity of the excess material to be delivered from the scheduled material source to the excess material source; and delivering the excess material according to the material handling report (claim 9) in order to allow material suppliers to prepare for future material demands by stocking safety levels of inventory without imposing excess inventory demands on their customers, thereby allowing the customers to minimize storage costs and reduce risks from market changes such as fluctuations in price or demand (as taught by Jenkins, ¶ 3).

[Claims 10, 11] Since Lilly provides for the scheduling of materials to arrive in time for production at a manufacturing facility (col. 5, lines 24-67; col. 6, line 65 through col. 7, line 22; col. 8, lines 33-67), it is understood that Lilly necessarily performs the steps of producing a material handling report for a handling operation of the at least one operation, wherein the material handling report specifies moving a first quantity of a first material for producing the item at the handling operation according to the work schedule

Art Unit: 3623

(claim 10) and moving the first quantity of the first material at the handling operation according to the material handling report (claim 11).

Lilly discloses:

[Claim 20] wherein the obtaining the at least one outstanding customer order includes using a status for each customer order of at least one customer order, wherein the status for each customer order is updated continuously (col. 5, lines 24-67; col. 6, line 65 through col. 7, line 22; col. 8, lines 33-67; col. 9, lines 1-25); and

the status for each outstanding customer order corresponds to an outstanding status (col. 5, lines 24-67; col. 6, line 65 through col. 7, line 22; col. 8, lines 33-67; col. 9, lines 1-25);

[Claim 21] wherein the outstanding customer orders and the current state of the available inventory are posted continuously for the generating the work schedule and the material delivery schedule (col. 5, lines 24-67; col. 6, line 65 through col. 7, line 22; col. 8, lines 33-67; col. 9, lines 1-25);

[Claim 22] wherein the available inventory comprises external inventory (Since Lilly teaches that a material availability is assessed by determining when a supply will be received into inventory (col. 8, lines 33-67), this implies that the needed materials may be ordered from an external inventory, including a supplier inventory);

[Claim 26] initiating work to produce the item according to the work schedule (col. 5, lines 24-67; col. 6, line 65 through col. 7, line 22; col. 8, lines 33-67; col. 9, lines 1-25);

[Claim 27] analyzing each of the at least one outstanding customer order for the item to determine a routing for producing the item, wherein the routing comprises a sequence of at least one routing operation of at least one operation of at least one manufacturing line of the factory (col. 5, lines 24-67; col. 6, line 25 through col. 7, line 22; col. 8, lines 33-67; col. 9, lines 1-25);

and wherein the generating the work schedule and the material delivery schedule includes generating the work schedule and the material delivery schedule using the routing for producing the item (col. 5, lines 24-67; col. 6, line 25 through col. 7, line 22; col. 8, lines 33-67; col. 9, lines 1-25).

[Claims 23, 25] Regarding claims 23 and 25, neither Lilly nor Jenkins expressly makes reference to an available inventory comprising work-in-progress inventory or in-house inventory. However, Official Notice is taken that it is old and well-known in the art that available inventories throughout a supply chain often include work-in progress inventory as well as in-house inventory. Maintaining these types of inventories can be useful in quickly manufacturing products in a mass customization and/or order-driven environment. Lilly is directed toward a mass customization and order-driven manufacturing system; therefore, the Examiner asserts that it would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to modify the Lilly-Jenkins combination to take into account work-in-progress inventory or in-house inventory when determining an available inventory in order to yield a more accurate

count of available inventory, especially in mass customization and order-driven manufacturing environments.

[Claim 30] Lilly teaches that the plurality of material sources comprises an external material source, the external material source providing an external inventory of a first material of the least one material of the available inventory (Since Lilly teaches that a material availability is assessed by determining when a supply will be received into inventory (col. 8, lines 33-67), this implies that the needed materials may be ordered from an external inventory, including a supplier inventory). Lilly does not expressly teach that “the determining the available inventory of the material includes using an external visibility interface module to determine the available inventory of the first material in the external inventory.” However, Jenkins’ invention provides “the user with real-time network visibility of planned shipments, in-transits, available inventory, and expiring product” (¶ 8), thereby addressing the limitation “the determining the available inventory of the material includes using an external visibility interface module to determine the available inventory of the first material in the external inventory.” As explained above, Jenkins teaches the tracking of available materials throughout a supply chain, including in-transit inventory, in order to quickly resolve conflicts with respect to product availability when they arise (¶¶ 7-9). Since Lilly is applied to an order-driven manufacturing environment (in which perfect timing of the arrival of needed materials is crucial), the Examiner asserts that it would have been obvious to one of ordinary skill in the art at the time of Applicant’s invention to adapt Lilly such that “the

determining the available inventory of the material includes using an external visibility interface module to determine the available inventory of the first material in the external inventory” in order to facilitate the quick resolution of conflicts with respect to product availability when they arise, thereby minimizing any negative impact to the order-driven manufacturing plans when such conflicts arise.

[Claim 31] Regarding claim 31, neither Lilly nor Jenkins expressly teaches that the material delivery schedule comprises a move report for delivering a delivered quantity of a delivered material of the at least one material from a first material source of the plurality of material sources to a second material source of the plurality of material sources. However, Official Notice is taken that it is old and well-known in the art of shipping to store ordered materials at a distributor or hub location for temporary storage before final delivery to the customer who ordered the materials. This often provides a more economical way of storing inventory, especially when available inventory is not yet, but will soon be needed by the customer in a mass customization or order-driven manufacturing environment (such as Lilly’s system). Therefore, the Examiner asserts that it would have been obvious to one of ordinary skill in the art at the time of Applicant’s invention to adapt the Lilly-Jenkins combination to include a move report for delivering a delivered quantity of a delivered material of the at least one material from a first material source of the plurality of material sources to a second material source of the plurality of material sources in order to manage shipments to an intermediate distributor or hub location, thereby providing a more economical way of storing inventory, especially when available inventory is not yet, but will soon be needed by the

customer in a mass customization or order-driven manufacturing environment (such as Lilly's system).

[Claims 32, 33, 35] Claims 32, 33, and 35 recite limitations already addressed by the rejection of claims 1, 2, and 20 above; therefore, the same rejection applies.

[Claim 36] Claim 36 recites limitations already addressed by the rejection of claims 1, 3, and 22-25 above; therefore, the same rejection applies.

[Claim 37] Claim 37 recites limitations already addressed by the rejection of claim 1 above; therefore, the same rejection applies.

6. Claims 12-19 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lilly et al. (U.S. Patent No. 5,787,000) in view of Jenkins (US 2002/0188499), as applied to claim 1 above, and further in view of Lidow (US 2002/0019761).

[Claims 12-19] As per claims 12-19, Lilly and Jenkins both take into account a commitment time for delivering the commitment quantity of the required material (as per claim 15 and as discussed above), yet Lilly nor Jenkins expressly teaches how a customer audits a received shipment. However, Lidow discloses that, upon receipt of a shipment, the customer verifies whether or not he/she received a complete shipment, an over-shipment, or a short-shipment. If an over-shipment is identified, the excess material is returned to the material supplier. If, on the other hand, a short-shipment is noted, further supply must be obtained, e.g., in a subsequent delivery (¶¶ 175-178). Therefore, Lidow is seen to address the limitations recited in claims 12-14, 16, 17, and

Art Unit: 3623

19 (minus those incorporated from claim 1). Lidow's invention promotes full billing and inventory reconciliation between suppliers and customers so that customers receive exactly what they ordered and suppliers receive payment for exactly what they shipped to and was accepted by the customer. Since Lilly and Jenkins work to facilitate efficient operations throughout the supply chain, the Examiner asserts that it would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to modify the Lilly-Jenkins combination to incorporate the steps of claims 12-14, 16, 17, and 19 in order to promote full billing and inventory reconciliation between suppliers and customers so that customers receive exactly what they ordered and suppliers receive payment for exactly what they shipped to and was accepted by the customer. As per claim 18, if a short-shipment occurs and more suppliers need to be delivered, thereby delaying a work schedule, then the work schedule would need to be rescheduled (as suggested in col. 8, lines 33-67 of Lilly). Therefore, the Examiner asserts that the limitations "wherein the generating the work schedule and the material delivery schedule produces a current generation of the work schedule and the material delivery schedule; and the issuing, the receiving, the comparing, and the accepting are performed between the current generation and a next generation of the work schedule and the material delivery schedule" (claim 18) are addressed by the Lilly-Jenkins-Lidow combination.

[Claim 34] Claim 34 recites limitations already addressed by the rejection of claim 12 above; therefore, the same rejection applies.

7. Claims 28 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lilly et al. (U.S. Patent No. 5,787,000) in view of Jenkins (US 2002/0188499), as applied to claim 1 above, and further in view of Layden ("A Rapidly Changing Landscape").

As per claims 28 and 29, Lilly does not expressly teach the incorporation of the limitations "wherein the periodically generating the work schedule and the material schedule includes generating the work schedule and the material delivery schedule every two hours (claim 28); wherein a manufacturing shift comprises a number of hours less than or equal to eight; and the periodically generating the work schedule and the material schedule includes generating the work schedule and the material delivery schedule a plurality of times during the manufacturing shift (claim 29)." However, Layden discusses order-driven manufacturing scheduling techniques (§ 3) in which dynamic plant management is employed (§ 5), thereby allowing dynamic factories to be "run without a plan at the floor level; orders are launched as soon as they arrive." (§ 5) Layden's disclosed scheduling techniques are based upon well-known scheduling theories, including "backward pass" and "forward pass" (§ 26), both of which are utilized by Lilly. Layden's scheduling techniques allow one to instantly communicate orders to the shop floor, scheduling them as they arrive (§§ 5, 9). Layden states, "Integration of scheduling and material planning balances plantwide priorities against the need for optimal workstation sequencing. The order-of-work is not generated until the operation start time." (§ 11) Material and resource constraints are taken into account in order to perform rapid resynchronization of customer orders (§ 13). This allows for the

immediate release of new orders to the floor in real time upon acceptance and the implementation of last-minute customer order changes as well as the insertion of priority orders (§ 14). Layden's rapid order flow performs the steps of "reserving resources and material, triggering reorders, and continuously adjusting for status changes" (§ 11).

Clearly, Layden bases its principles on the common scheduling techniques utilized by Lilly (e.g., using forward and backward scheduling algorithms to incorporate material and resource availability and generate a production schedule) and enhances them by providing the work schedule to the manufacturing line, substantially immediately after generating the work schedule, for initiating work to mass produce each of the at least one item according to the work schedule and repeating all recited steps a plurality of times during a manufacturing shift, thereby making the order-driven manufacturing process more efficiently and effectively responsive to new customer orders, priority orders, last-minute customer changes, etc. Furthermore, Official Notice is taken that it is old and well-known in the art to limit manufacturing shifts to eight hours or less.

Splitting up an eight-hour shift into smaller periods would likely yield periods of two or four hours. Consequently, the Examiner asserts that it would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to implement the limitations "wherein the periodically generating the work schedule and the material schedule includes generating the work schedule and the material delivery schedule every two hours (claim 28); wherein a manufacturing shift comprises a number of hours less than or equal to eight; and the periodically generating the work schedule and the material schedule includes generating the work schedule and the material delivery

Art Unit: 3623

schedule a plurality of times during the manufacturing shift (claim 29)" with the details of Lilly's production planning and scheduling system in order to reap the benefits of making the order-driven manufacturing process more efficiently and effectively responsive to new customer orders, priority orders, last-minute customer changes, etc. (as suggested by Layden).

Allowable Subject Matter

8. Claim 5 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 101, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

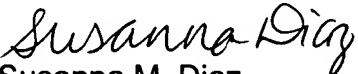
Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Susanna M. Diaz whose telephone number is (703) 305-1337. The examiner can normally be reached on Monday-Friday, 9 am - 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tariq Hafiz can be reached on (703) 305-9643. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 3623

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Susanna M. Diaz
Primary Examiner
Art Unit 3623
November 15, 2004